

**Proposed Action for the
Ladybug Forest Health and Fuels Reduction Project
U.S. Forest Service
Tahoe National Forest, Truckee Ranger District
Nevada County, California**

Background

The Forest Service is initiating public scoping on the proposed Ladybug Forest Health and Fuels Reduction project. The project area is situated within landscape areas designated by the Chief of the Forest Service on November 24, 2015 as part of an insect and disease treatment program in accordance with Title VI, Section 603, of the Healthy Forest Restoration Act (HFRA), as amended by Section 8204 of the Agriculture Act (Farm Bill) of 2014.

Vegetation treatments to reduce the risk of insect infestations, as well as to reduce the negative effects of those infestations on forest health and resilience, are proposed on approximately 2,900 acres of National Forest System (NFS) lands. Proposed project treatments include: mechanical thinning, mastication, hand thinning, prescribed burning, road actions and application of borax compound.

The Ladybug Forest Health and Fuels Reduction Project (Ladybug) is located in a heavily recreated area just East of Stampede reservoir and West of the community of Verdi, Nevada along the western slope of the Verdi Range (see map, Appendix A). The area consists of several medium and small drainages, in an area susceptible to wildfires. National Forest System (NFS) land comprises much of the area, however there are 640 privately owned acres within the project footprint. Forest cover is a combination of native stands and pine plantations. Native stands include ponderosa pine (*Pinus ponderosa*) and Jeffrey pine (*Pinus jeffreyi*) stands at lower elevations, Jeffrey pine and white fir (*Abies concolor*) stands at mid to upper elevations and red fir (*Abies magnifica*), western white pine (*Pinus monticola*) and white fir stands on upper north facing slopes. Plantations are a mix of ponderosa and Jeffrey pine.

Collaboration Process

Collaboration with adjacent landowners, stakeholders, and the community was an integral part of designing the Ladybug Proposed Action as well as a requirement under the Healthy Forest Restoration Act. The Truckee Ranger District shared the Ladybug Project concept on March 26th, 2019 at a public information session at the Truckee Ranger District Office. Out of this information session emerged a working group comprised of community individuals and representatives from local groups and agencies. With assistance from the Truckee River Watershed Council, the working group met with Forest Service staff on April 19th to discuss potential treatment options. During that meeting, vegetation removal along the 72 Road were proposed by the working group and were eventually incorporated into the proposed action. On June 24th, 2019, the working group went on a field visit to look at various units and discuss treatment types. These meetings were critical to the formation of the Proposed Action.

Purpose and Need

Overcrowded forests, historic Comstock era logging and fire suppression combined with recent drought conditions have contributed to increased levels of tree mortality from various stressors, particularly insects and disease. A Forest Health Entomologist conducted a field evaluation of the Ladybug Project area on July 10th, 2018 and provided an Insects and Diseases report (available upon request). The key findings of the Insect and Disease report are as follows:

- White fir abundance has increased within the mid to upper elevations of the project area due in large part to fire suppression.
- White fir is now the dominant conifer species in many stands that were historically dominated by fire-adapted Jeffrey pine and is competing with red fir and western white pine stands at the highest elevations.
- Fir engraver beetle-caused white fir and red fir mortality has increased over the past three years.
- Fuel loading from dead and down white fir over the past 25 years has put some areas at risk to stand-replacing wildfire.
- Some ponderosa and Jeffrey pine stands at lower elevations are overstocked and susceptible to bark beetle-caused tree mortality during drought.

Actions are needed to reduce the extent of insect infestations in the project area and increase resistance to new infestations. Thinning increases the amount of available soil moisture and sunlight for individual trees which enables remaining trees to be more resistant to insects and diseases (Slaughter and Parmeter 1989, Ferrell et al. 1994; Smith et al. 2005; Fettig et al. 2007). Thinning can also improve forest resistance to high severity wildfire as well as changing climatic conditions. The creation of forest openings (i.e. increased spatial heterogeneity) can also provide opportunities for natural regeneration of shade intolerant species (e.g. red fir, Jeffrey pine) (North et al. 2010; North et al. 2012).

In addition, along National Forest Transportation System (NFTS) roads in the project area, vegetation is encroaching within 20 feet of the road prism, reducing driver visibility for all vehicles. Roadside brush growth and hazard trees create fuel conditions that, in the event of a wildfire, may be unsafe for emergency personnel ingress and egress. Action is needed to maintain NFTS roads by remove brush and hazard trees, while meeting Region 5 hazard tree guidelines.

Proposed Action

The Forest Service proposed action includes mechanical thinning of commercial timber, mastication of non-commercial timber (i.e. small trees) and brush, prescribed burning, road actions (including vegetation removal) and application of borax compound on approximately 2,900 acres of NFS lands. Commercial timber is defined as trees greater than 10 inches in diameter at breast height (DBH). Non-commercial timber (i.e. biomass), is defined as trees between 3.0 inches and 9.9 inches DBH. The treatment and method proposed for each treatment unit is summarized in Table 1 and is shown on map in Appendix A.

The Ladybug Project includes the following activities:

- Mechanical thinning of commercial and non-commercial timber on approximately 1,850 acres.
- Mechanical mastication of non-commercial timber and brush on approximately 610 acres.
- Hand thinning treatments on approximately 40 acres on slopes greater than 35%.
- Prescribed burn treatments on approximately 2,880 acres.
- Road maintenance and temporary road reconstruction to support forest health treatments
- Mastication of non-commercial timber and brush up to 20 feet from the road prism and hazard tree removal on NFTS 72 Road (approximately 36 acres).
- Application of borate compound to cut stumps.

Some treatments overlap, in particular the forest health and prescribed burn treatments; total acreage of land proposed for treatment is approximately 2,900 acres.

Mechanical Thinning Units (approximately 1,850 acres)

These units contain both commercial timber and non-commercial timber. Trees 10 inches- 29.9 inches DBH would be mechanically thinned to a basal area average (i.e. the amount of area occupied by tree stems) of 80 to 120 square feet per acre. Residual canopy cover will range from 30 to 50 percent. The thinning prescription will mimic or enhance existing desired vegetation patterns (i.e. expand existing openings, utilize existing leave areas) to create forest openings that average 0.5 acres; some openings will be larger and some smaller.

Slopes less than 35 percent will be logged with ground-based mechanized equipment. When feasible, trees will be whole- tree yarded. If whole-tree yarding is not feasible, limbs and tops will be masticated. Ground-based mechanized equipment will also be used for non-commercial timber removal (i.e. smaller trees from 3.0 inches- 9.9 inches dbh). Small trees will be cut, skidded and decked at landings, then chipped and removed as biomass. Where non-commercial timber removal is not feasible due to economic or other constraints, the decked material may be burned on site within units or landings.

Where ecologically appropriate, some openings may be planted with native tree species to increase diversity and resilience of the forest stands. Planted trees would be released for survival by manually grubbing a five-foot radius around trees until they are established above the competing vegetation. No mechanical site preparation is proposed.

Mastication Only and Hand Thinning Units (approximately 650 acres)

Mastication only units and hand thinning units are those which have little to no commercial timber. Mastication (without thinning) is proposed on approximately 610 acres. A masticator is typically a tracked piece of equipment, similar to an excavator, which grinds or chews vegetation to meet desired spacing requirements. Mastication would remove small trees up to 9.9 inches dbh as well as shrubs with a residual tree spacing of approximately 20 feet. Mastication may also treat slash and activity fuels from commercial thinning operations. Mastication of trees and shrubs will reduce ladder fuels and alleviate remaining trees from competition for water, soil nutrients, and sunlight, thus increasing overall forest health and resilience. On slopes greater than 35%, hand thinning treatments will occur (approximately 40 acres).

Prescribed Burn Treatments (approximately 2,900 acres)

Prescribed burning will be used to reduce surface and ladder fuels. Types of prescribed burning may include underburning, pile burning or burning of decked material. For pile burning, timber harvest residual and naturally occurring surface fuels will be gathered by hand or by tractor into piles within units or at landings and then burned; smaller decked material may also be burned. Within the above forest health treatment units (including the mechanical thinning, mastication only and hand thinning units), prescribed burning is proposed as a follow-up treatment to consume masticated, piled or decked fuels (approximately 2,500 acres). In addition, in areas that are too rocky or otherwise determined to be not suitable for mechanical or hand fuels treatment, underburning is proposed as a stand-alone treatment (approximately 400 acres).

Table 1. Forest Health Treatment Prescriptions by Unit

Unit	Acres	Forest Health Treatment	Residual Basal Area *	Retained Tree Spacing	Follow-up Treatment
20	93	Mastication	n/a	20' x 20'	Prescribed burn
21	216	Mastication	n/a	20' x 20'	Prescribed burn
22	32	Hand	n/a	20' x 20'	Prescribed burn
23	138	Mastication	n/a	20' x 20'	Prescribed burn
47	162	Mechanical thin	80		Mastication + prescribed burn
41	205	Mechanical thin	80		Mastication + prescribed burn
42	60	Mechanical thin	80		Mastication + prescribed burn
43	97	Mechanical thin	80		Mastication + prescribed burn
46	105	Mastication	n/a	20' x 20'	Prescribed burn
48	113	Mechanical thin	100		Mastication + prescribed burn
50	253	Mechanical thin	80		Mastication + prescribed burn
51	124	Mechanical thin	80		Mastication + prescribed burn
52	129	Mechanical thin	80		Mastication + prescribed burn
53	123	Mechanical thin	80		Mastication + prescribed burn
54	92	Mechanical thin	80		Mastication + prescribed burn
55	65	Mastication	n/a	20' x 20'	Prescribed burn
56	102	Mechanical thin	80		Mastication + prescribed burn
57	379	Mechanical thin	80		Mastication + prescribed burn

*density of tree stems in square feet per acre; see Figure 1 and 2.



Figure 1. Representative area showing thinning before (left) and after (right).



Figure 2. Representative area showing residual basal area of approximately 80 ft²/ac

Roadside Treatments (approximately 36 acres)

Road maintenance will be conducted by removing hazard trees and brush along NFTS roads that are within the project area but outside of other forest health treatment units. Brush would be masticated up to 20 feet on either side of approximately six miles of road (approximately 36 acres). Hazard trees would be identified and removed using the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (USDA 2012).

Road Actions

The following actions would be needed to access treatment units, improve road conditions in the project area, and provide for hauling ingress and egress:

- Re-construction of approximately 10 miles of NFTS roads to meet NFTS standards.
- Use of approximately 5 miles of previously tilled temporary roads, unclassified non-system roads or roadbeds, or new temporary roads to provide short-term access to landings or roads from the treatment units. Temporary roads would be decommissioned within three years of completion of vegetation management activities. Existing roads would be used wherever practicable.
- Road maintenance actions within the existing road right-of-way, including ditch cleaning, surface repair, maintaining drainage structures, dust abatement, roadside brushing, minor curve widening, maintenance of miscellaneous structures (gates, etc.), installing or removing water bars, installing or removing barriers and slide/slump repair.

Road work would be completed to restore/repair roads to accommodate the planned project-related traffic and be consistent with the existing traffic service level, water quality objectives, and Road Management Objectives.

Application of Borax Compound

To reduce the spread of Annosus root disease caused by the fungus *Heterobasidion annosum*, a borax compound (e.g. Sporax®, Cellu-treat®) may be manually applied to cut stumps of all conifer species less than 14 inches stump diameter. Applications of borax compound would follow all State and Federal rules and regulations as they apply to pesticides, will follow the pesticide label requirements and will be conducted in coordination with Vegetation Management Officer and an interdisciplinary team.

Resource Protection Measures

An interdisciplinary team is developing resource protection measures that will be added to the proposed action and included in the decision document to ensure that the proposed activities meet the requirements of the Tahoe National Forest Land and Resource Management Plan (1990) as amended by the Sierra Nevada Forest Plan Amendment (2004) as well as other relevant laws and regulations.

Categorical Exclusion

The actions proposed for this project are categorically excluded from documentation in an environmental impact statement (EIS) or an environmental assessment (EA) in the following two categories (FSH 1909.15, Chapter 30):

- 1) A collaborative restoration project in an insect and disease treatment area designated by the Chief under Section 602 and 603 of the Healthy Forest Restoration Act which are categorically excluded by statute (16 U.S.C. 6591b).
- 2) Repair and maintenance of roads, trails and landline boundaries which are categorically excluded by the Chief (36 CFR 220.6(d) (4)).

The Ladybug project area is within designated landscape areas as authorized as part of an insect and disease treatment program in accordance with Title VI, Section 603, of the Healthy Forest Restoration Act (HFRA), as amended by Section 8204 of the Agriculture Act (Farm Bill) of 2014. To be designated, areas must be:

- 1) Experiencing declining forest health, based on annual forest health surveys;
- 2) At risk of experiencing substantially increased tree mortality over the next 15 years due to insect or disease infestation based on the most recent National Insect and Disease Risk Map published by the Forest Service; or
- 3) In an area in where hazard trees pose an imminent risk to public infrastructure, health or safety.

Insect and disease projects subject to categorical exclusion from preparation of an EA or EIS under Section 603 of HFRA are subject to several qualifying criteria. How the Ladybug Project meets these requirements is described in Table 2.

Table 2. Healthy Forest Restoration Act (HFRA) Requirements

HFRA Project Requirements Section	HFRA Requirement	Project Compliance Description
Section 603(c)(2)(A)&(B)	Project is located entirely within the wildland urban interface or within Condition Classes 2 or 3 in Fire Regime Groups I, II or III	Ladybug is located within WUIs as defined by HFRA and Condition Class 3.
Section 603(d)(1)-(4)	Project may not be located within designated Wilderness, Wilderness Study Areas, areas where the removal of vegetation is restricted or prohibited, or where activities would be inconsistent with the Forest Plan	Ladybug does not include any of these areas or situations.
Section 603(b)(1)(A)-(C)	Project carries out forest restoration treatments that maximize retention of old-growth and large trees, considers the best available science to maintain or restore ecological integrity, and is developed through a collaborative process.	Healthy large trees over 30 inches in diameter are not proposed for harvesting under the project. Best available science has been and will be considered in development of the proposed action and

HFRA Project Requirements Section	HFRA Requirement	Project Compliance Description
		the effects analysis. Development of the project included a collaborative process.
Section 603(c)(1)	Project may not exceed 3,000 acres in size	The proposed forest health treatments are approximately 2,500 acres
Section 603(c)(3)	Project may not include the establishment of permanent roads and shall decommission any temporary roads within 3-years of project completion.	No permanent roads will be constructed. Temporary roads will be decommissioned within 3-years of project completion.
Section 603(e)	Project must be consistent with the land and resource management plans	The proposed action is consistent with the Forest Plan.
Section 603(f)	Project is required to have public notice and scoping.	Public notice of the project will be published in the newspaper of record and scoping will be carried out.

Road maintenance will be conducted by removing trees along NFTS roads and repairing or reconstructing NFTS roads within the existing right-of-way, which falls within the road maintenance CE category ((36 CFR 220.6(d) (4).

References Cited

- Ferrell, G.T. 1996. The influence of insect pests and pathogens in the Sierra forests. In: Sierra Nevada Ecosystem Project: final report to Congress. Davis, CA: University of California, Centers for Water and Wildland Resources. Volume 2, Chapter 45
- Fettig, C.J., K.D. Lepzig, R.F. Billings, A.S. Munson, T.E. Nebeker, J.F. Negron, J.T. Nowak. 2007. The effectiveness of vegetation management practices for prevention and control of bark beetle infestations in coniferous forests of the Western and Southern United States. *Forest Ecology and Management*. 238: 24-53
- North, Malcolm, and Peter Stine, Kevin O'Hara, William Zielinski, and Scott Stephens. 2010. *An Ecosystem Management Strategy for Sierran Mixed Conifer Forests*. PSW-GTR-220 (Second printing, with addendum)
- North, Malcolm, ed. 2012. *Managing Sierra Nevada forests*. Gen. Tech. Rep. PSW-GTR-237. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 184 p.
- Slaughter, G. W. and J. R. Parmeter Jr. 1989. Annosus Root Disease in True Firs in Northern and Central California National Forests. USDA Forest Service Gen. Tech. Rep. PSW-116.
- Smith, T., D. Rizzo, M. North. 2005. Patterns of mortality in an old-growth mixed-conifer forest of the southern Sierra Nevada, California. *Forest Science*. 51(3): 266-275.
- USDA Forest Service. 2012. *Hazard Tree Guidelines for Forest Service Facilities and Road in the Pacific Southwest Region*. Vallejo, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Region. 40 p.